(Talent & Olympiad Notes)

Measurement

- **Basic units:**

Length - metre (m)   Mass (Weight) - gram (g)   Capacity (Volume) - litre (Z)

Time - second (s)   Temperature - degree Celsius (°C)

- Lengths are measured using millimeters (mm), centimeters (cm) meters (m) and kilometers (km).

1 cm =10 mm;   1 m=100cm;   1 km = 1000m

- Mass or weight of an object is measured using milligrams (mg), grams (g) and kilograms (kg).

1 g = 1000 mg; 1 kg = 1000 g;   1 tone = 1000 kg

- Capacity is measured using milliliters (mZ), liters (Z) and kiloliters (kZ).

1Z=1000 mZ;1 kZ=1000Z

- Time is measured in seconds (s), minutes (min), and hours (h). Larger durations are measured in days, weeks, months, years, decades, centuries etc.,
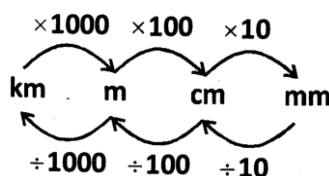
1 hour = 60 minutes;   1 minute = 60 seconds

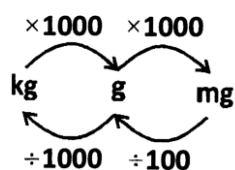- To convert a bigger unit to a smaller unit, multiply by the conversion factor.
- To convert a smaller unit to a bigger unit, divide by the conversion factor.
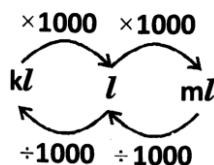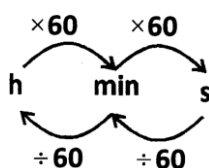- **Conversions:**

   (a) Length:

   (b) Mass:

   (c) Capacity:

   (d) Time:

To express length, mass or capacity using bigger unit, we use decimals.

- **Duration of time:** The time spent during an event or activity is called the duration of time, or elapsed time.

a) To find the finishing time, add the elapsed time to the starting time.

Finishing time = Starting time + Elapsed time

Note: We count forward to find the finishing time.

b) To find the starting time, subtract the elapsed time from the finishing time.

Starting time = Finishing time - Elapsed time

Note: We count backwards from the finishing time to find the starting time.

- To find the finishing date, add the duration to the starting date.

Finishing date = Duration + Starting date

Note: We count forward to find the finishing date.

Starting date = Finishing date – Duration

Note: We count backward to find the starting date.

1 century =100 years =10 decades

1 decade = 10 years

1 year =12 months;   1 month = $\dfrac{1}{12}$ year

1 week = 7 days;   1 day = $\dfrac{1}{7}$ week

1 day = 24 hours;   1 hour = $\dfrac{1}{24}$ day

1 hour = 60 minutes;   1 minute = $\dfrac{1}{60}$ hour

1 minute = 60 seconds;   1 second = $\dfrac{1}{60}$ minute

- **Temperature:** The degree of hotness of a body is called its temperature. It is measured in degree Celsius written as °C.

On the Celsius scale, freezing point of water is 0 °C and boiling point of water is 100 °C

There are 100 equal divisions on the Celsius scale.

The temperature of a normal human being is 37 °C.

Temperature is measured using a thermometer.

4 A clinical thermometer which shows the temperature in the range of 35 °C to 42 °C is used to measure the temperature of a human body.

- **Estimation:** In real life we estimate measures of length, mass, capacity, time and temperature.